

Contract Work Order 33
Scott Bryant; February 18, 1997

Work Package Agreement Account Code
REMOTE PREDICTS WORK: 412-27910-0-3940
NMC WORK: 412-28270-0-3940 (was previously 412-28158-0-9400)

STATEMENT OF WORK:

CWO TITLE:

DSCC Radio Science Software: RSCP (continuing)

BACKGROUND:

This CWO update reflects a change in the NMC Closed Loop Control account number from 412-28158-0-9400 to 412-28270-0-3940. This updates also specifies the breakdown in workload between a full time programmer and the radio science account manager/CDE.

This CWO authorizes continued work on the DSP-R subsystem to develop a new capability to accept predicts via the Remote Operations terminal. Currently, these downlink carrier frequency predicts can only reach the DSP-R as support data packets sent from the CMC. The Mars Global Surveyor (MGS) project wants the capability to send predicts via the Radio Science Remote Operations terminal to the file system in the DSP-R. The DSP-R must be modified to read, validate, and then process predicts delivered in this way. This work will be delivered as part of the RSCP OP-D software delivery in April 1997.

This CWO also authorizes work on the DSN tracking subsystem to implement the new NMC to DSP-R interface. This work will begin after the RSCP OP-D delivery and includes interface definition, implementation, and testing with the NMC development group. This work will be delivered as part of the RSCP OP-E software delivery in September 1997.

DESCRIPTION OF REMOTE PREDICTS WORK

TASK DETAILS:

All work shall be in accordance with JPL D-4000 Standards. Software development schedules shall include well identified demo tests to verify incremental capabilities. The RSCP OP-D will start soak testing in April 1997.

The contractor will:

- Assist the Radio Science CDE with developing requirements and a DSP-R design with the Remote Operations users.
- Provide Presentation materials for in-group design review.
- Provide software documentation including updated SOM, RDD, and addendums to test procedures.
- Provide software source code and program build procedures.
- Provide demo test procedures and reports documenting results.
- Perform Pre-Acceptance testing and support Acceptance testing.
- Provide training materials for software operators.

The contractor shall assist JPL personnel in the conduct of tests to verify capability and in characterizing and diagnosing problems encountered in the field.

Approach for Remote Operations predicts delivery:

- Define requirements with MGS operations personnel including predicts format, method of delivery to the RSCP file system, number of sets requiring support, speed of operations, and operational scenarios.

- Develop and present a design that meets these requirements.
- Present the design for in-group review.
- Document the Remote Operations to DSP-R interface in a new 820-16 module.
- Configure RSCP operating system to accept files from the Remote Operations computer.
- Add operator directives to order the DSP-R to read specific file(s) received from the Remote Operations computer and associate that file with a specific predict set id(s).
- Add RSCP processing to read a specified Remote Operations predicts file and validate the file's format.
- Add RSCP processing to store valid Remote Operations predicts files into the same internal storage area as predicts received via the CMC.
- Verify that valid Remote Operations predicts files in the RSCP storage area can be sent to and used by the SPAR in the same way as predicts received via the CMC.
- Provide demos at milestone capabilities.

SCHEDULE AND DELIVERABLES:

Requirements definition 10/28/96 to 11/1/96
 Design 11/4/96 to 11/22/96
 Present in-group requirements and design review 11/22/96
 Write new Remote Operations to DSP-R interface 11/18/96 to 11/29/96
 Configure RSCP operating system to accept predicts 12/2/96 to 12/20/96
 Demo ability to send predicts from Remote Operations to RSCP file system 12/20/96
 Add operator directives to DSP-R for predicts 12/23/96 to 1/3/97
 Add RSCP processing to read and validate predicts 1/6/96 to 1/24/97
 Add RSCP processing to store predicts 1/27/97 to 2/14/97
 Verify valid predicts sent from Remote Operations and used in DSP-R 2/17/97 to 3/7/97
 Demo valid predicts sent from Remote Operations and used in DSP-R 3/7/97
 Pre-Acceptance testing 3/10/97 to 3/21/97
 Acceptance testing 3/24/97 to 4/11/97
 SOM, STP-1, and RDD 4/18/97
 Begin Soak Testing 4/21/97

ACCOUNT CHARGING:

The Remote Predicts work should be charged to account code 412-27910-0-3940 at a rate of 1 staff position for a full-time software coder and 0.25 staff position for the management/CDE.

DESCRIPTION OF NMC WORK

TASK DETAILS:

All work shall be in accordance with JPL D-4000 Standards. Software development schedules shall include well identified demo tests to verify incremental capabilities. The RSCP OP-E will start soak testing in September 1997.

The contractor will:

- Assist the CDE with developing requirements and a NMC interface design.
- Provide Presentation materials for in-group design review.
- Provide software documentation including updated SOM, RDD, and addendums to test procedures.
- Provide software source code and program build procedures.
- Provide demo test procedures and reports documenting results.
- Perform Pre-Acceptance testing and support Acceptance testing.
- Provide training materials for software operators.

The contractor shall assist JPL personnel in the conduct of tests to verify capability and in characterizing and diagnosing problems encountered in the field.

Approach for NMC delivery:

- Develop and document a NMC-DSP-R interface with the help of NMC and MDA CDE's.
- Conduct an in-group design review of the design for the NMC-DSP-R implementation.
- Code and unit test the software implementation of the NMC-DSP-R interface.
- Conduct testing with NMC development group to verify system functionality. Make corrections as necessary.
- Provide updated documentation of changes and new capabilities.
- Provide demos at milestone capabilities.

SCHEDULE AND DELIVERABLES:

Design 3/31/97 to 5/9/97

Code and unit test 5/12/97 to 7/11/97

System functionality and Pre-Acceptance testing 7/21/97 to 8/8/97

Acceptance testing 8/15/97 to 9/12/97

SOM, STP-1, and RDD 9/5/97

Conduct Test and Transfer Review and begin Soak Testing 9/5/97 to 9/26/97

Account close date 9/29/97

ACCOUNT CHARGING:

The Remote Predicts work should be charged to account code 412-28270-0-3940 at a rate of 1 staff position for a full-time software coder and 0.25 staff position for the management/CDE.